



# J-MASS HLA Application Future Concepts

18 July 1996

Capt. Mike Lightner  
Wright Laboratory

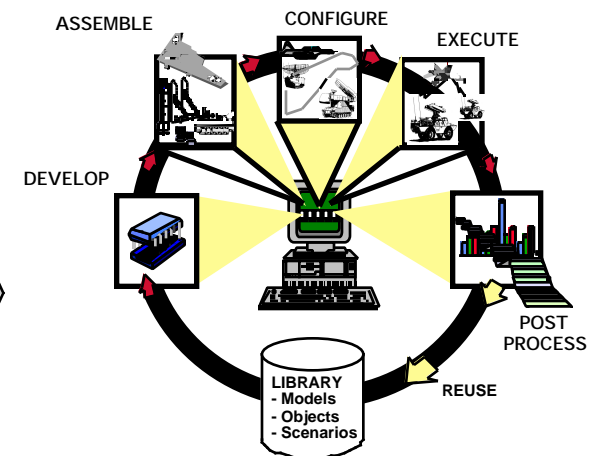
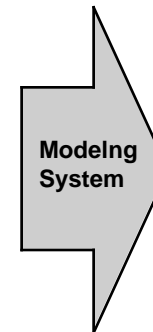


# Agenda

- JMASS Overview
- JMASS as an HLA Simulation Builder
- An HLA Exercise Manager Capability
- Collaborative Virtual Prototyping at Wright Laboratory

# The Essence of J-MASS

- Inter-simulation & Tool Infrastructure
  - Communications Architecture
  - Visual Development Tools
  - Analysis Tools
  - Simulation Engine
  - COTS & Legacy Tool Interface
- Model Library & Repository
  - Customer Support Center
- Intra-simulation Architecture
  - SEI Software Structural Model for Reuse
  - Domain Independent Methodology
  - Meta Language for Model Description
  - Code Generators for Meta Language to models
  - Domain Specific Run-time Agents

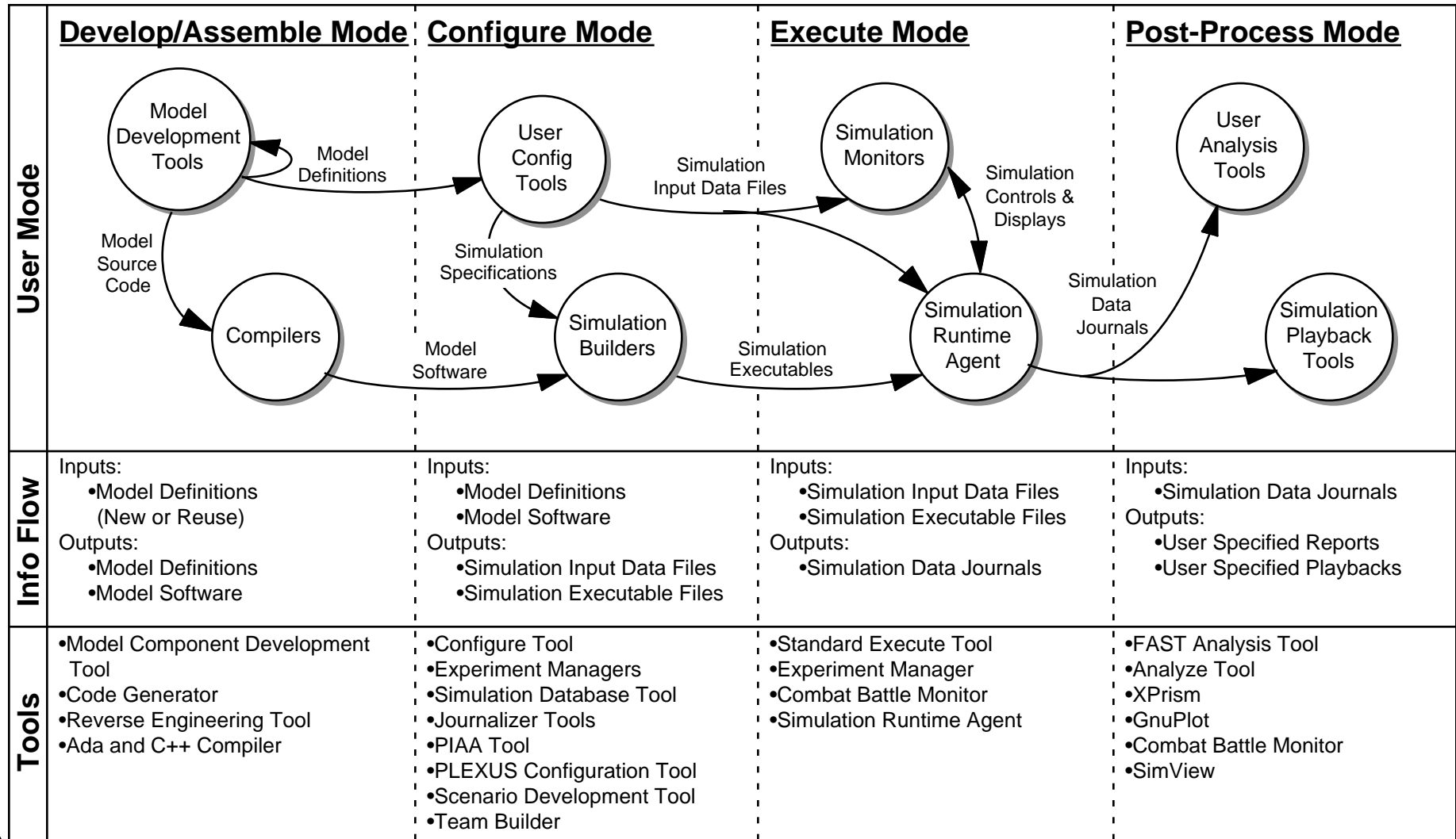


*Many Types of Users*

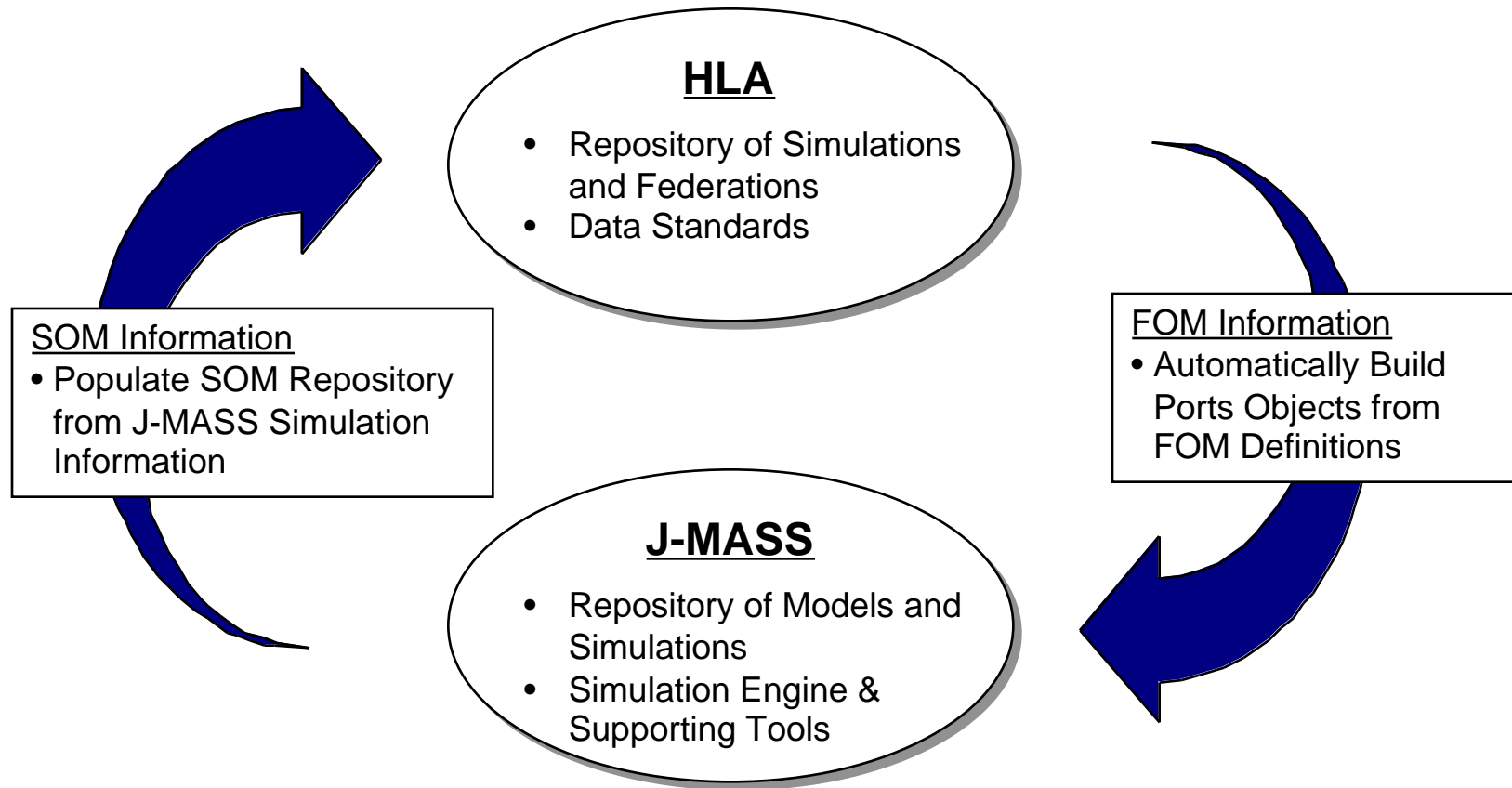
*The J-MASS vision is a Community of Users and Domain Experts  
Doing Rapid Development, Affordable, Reusable, Validated M&S*

# J-MASS Fully Integrated Toolset

## Simulation Support Environment (SSE)



# Potential HLA / J-MASS Development Cycle



Tools are Necessary for Robust Federation Development,  
Top-Down Definition and Bottom-Up Implementation

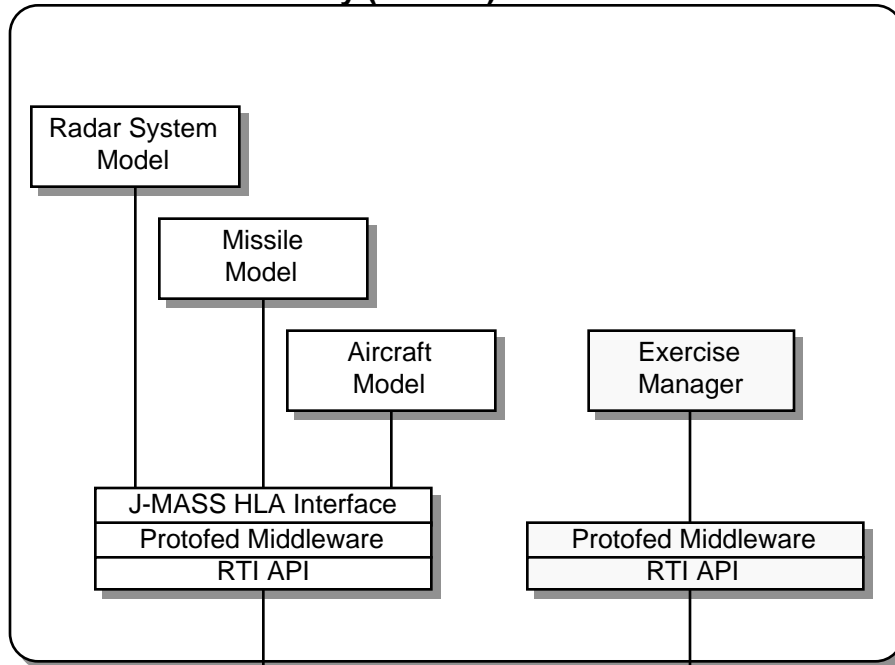
# J-MASS HLA Vision

## Potential Concepts

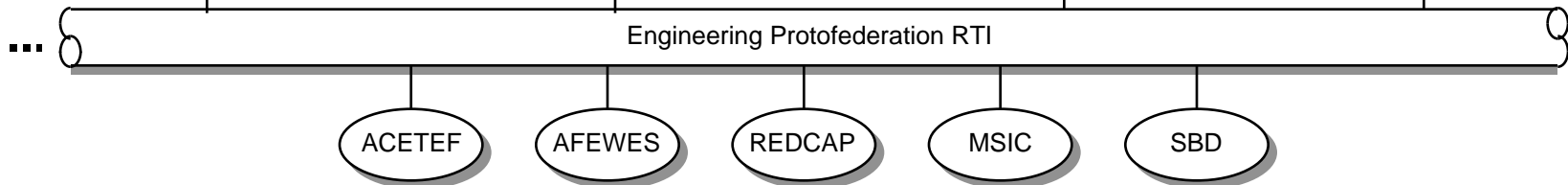
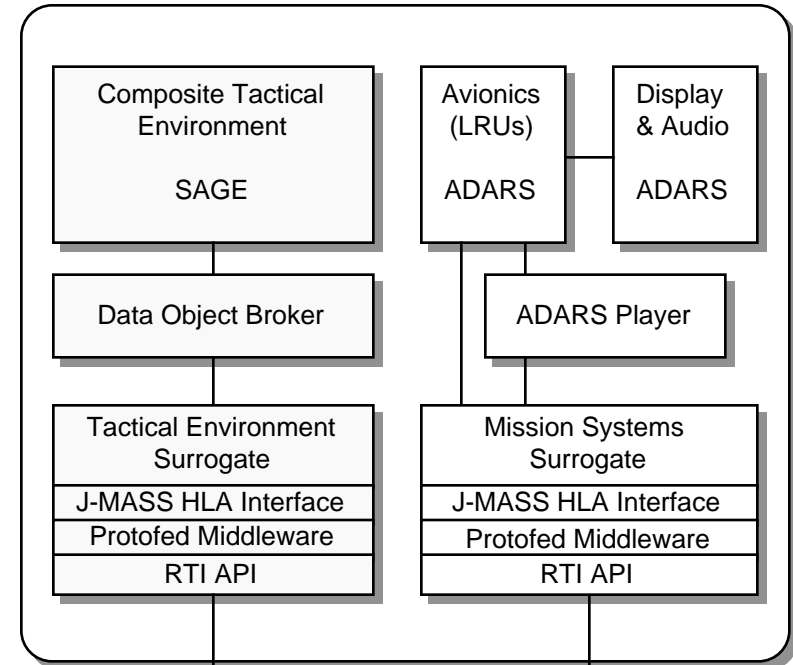
- J-MASS as a HLA Simulation Development Tool
  - MCDT for Specification of J-MASS Models That Can Be Automatically HLA-Compliant
  - MCDT for Specification of HLA-compliant Port Objects
  - Code Generator to Develop Simple HLA-compliant Ports Objects Automatically
  - Team Builder Reading HLA FRED Specifications in Order to Automatically Build “HLA-Ready” J-MASS Teams
- J-MASS as Basis for HLA Simulations
  - J-MASS Models Providing Simulation Objects for Federations
  - Port Objects Working Either via J-MASS or HLA, as Defined at Execution Time (Configured)
  - J-MASS Team/Sim Controllers Working with HLA Time and Exercise Management Capabilities
  - J-MASS Employing RTI Simulation Backplane in Addition to or Instead of Existing IBP
  - Expanding J-MASS Simulation Technology to Include HLA Concepts for Model Interactions

# JMASS HLA Federate Architectural View

## Electronic Concepts Simulation Research Laboratory (ECSRL)



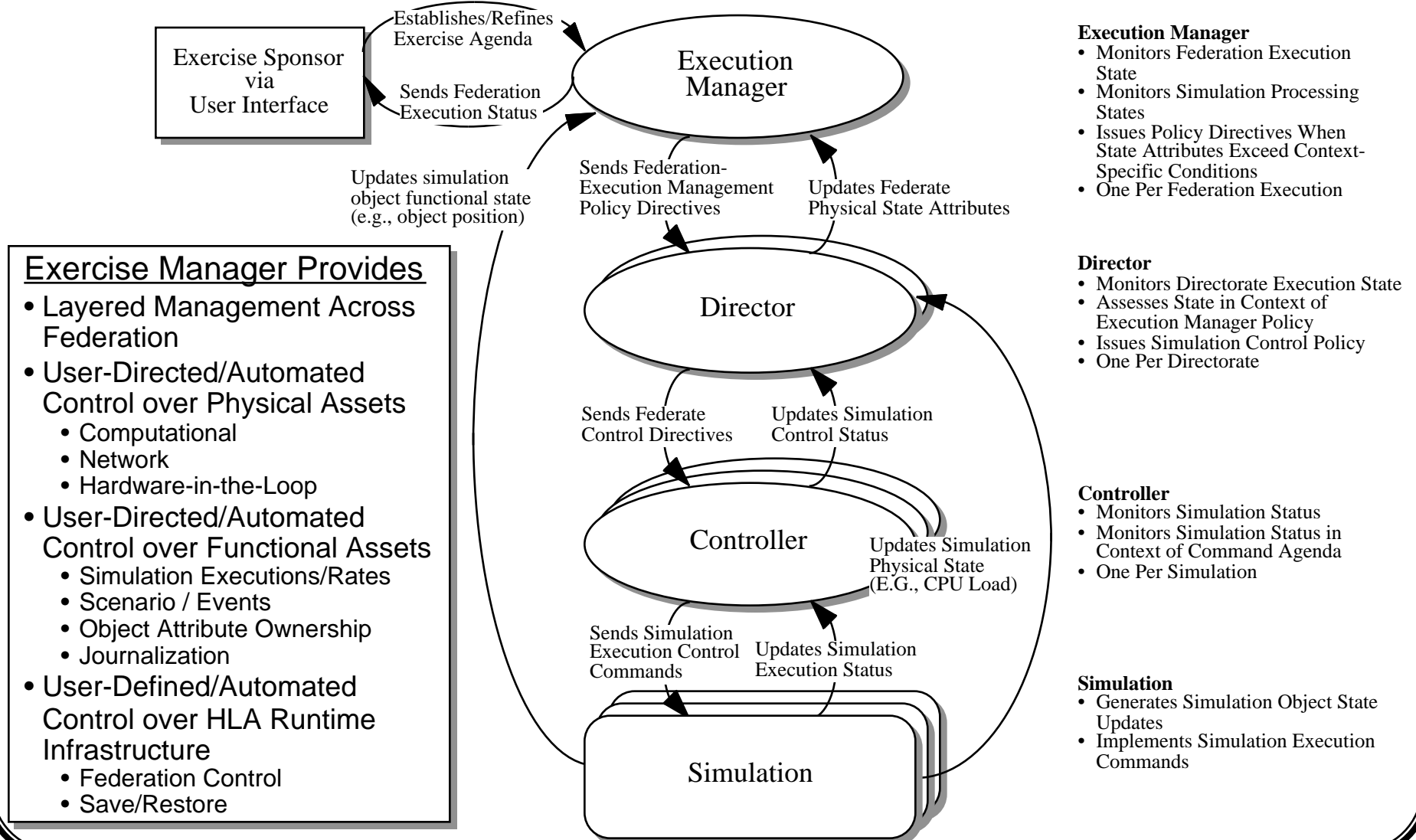
## Integrated Defensive Avionics Laboratory (IDAL)



J-MASS Federates for Engineering Protofederation

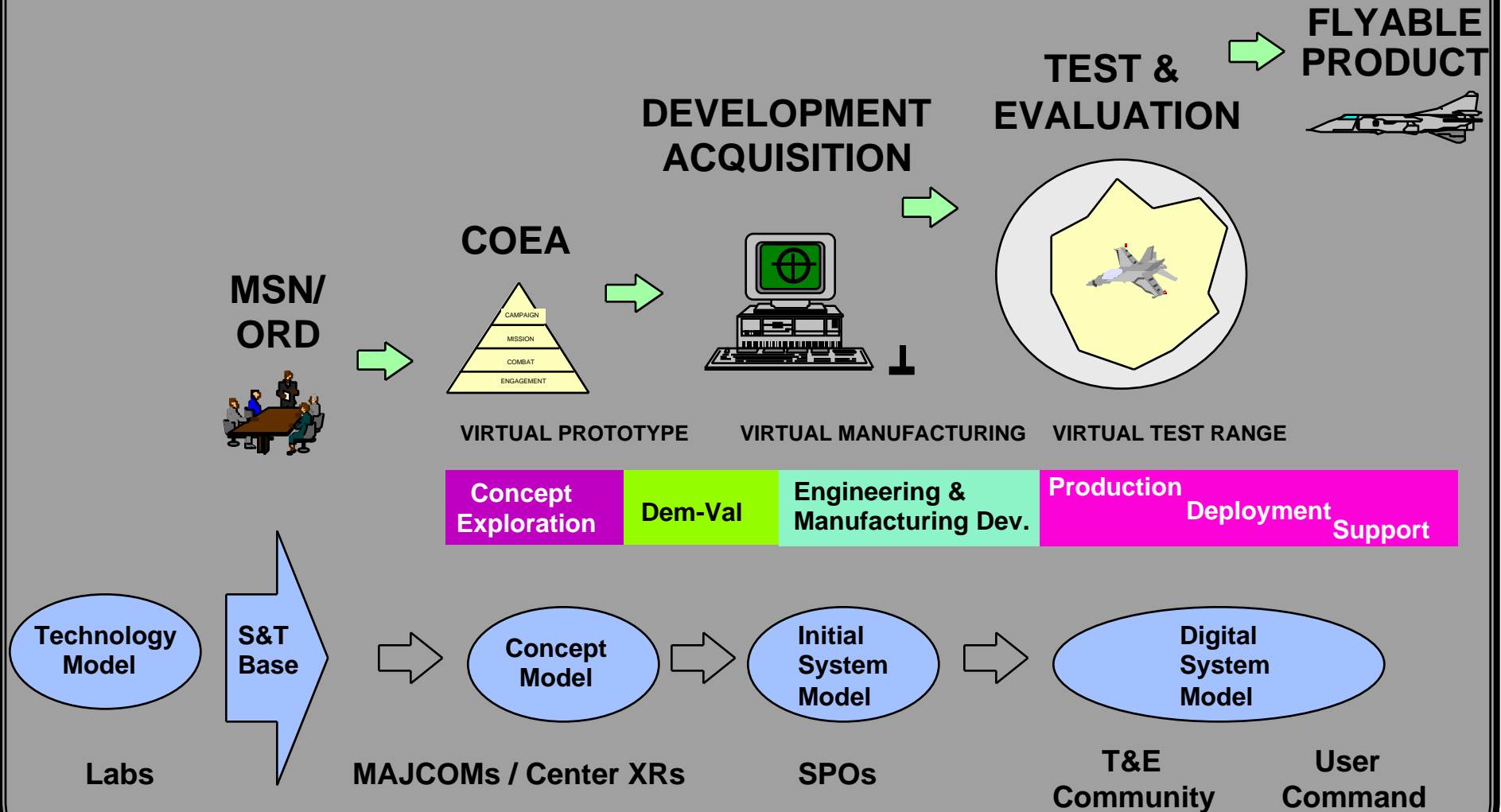
Additional J-MASS Federation Federates

# Exercise Manager Processing & Data Flow

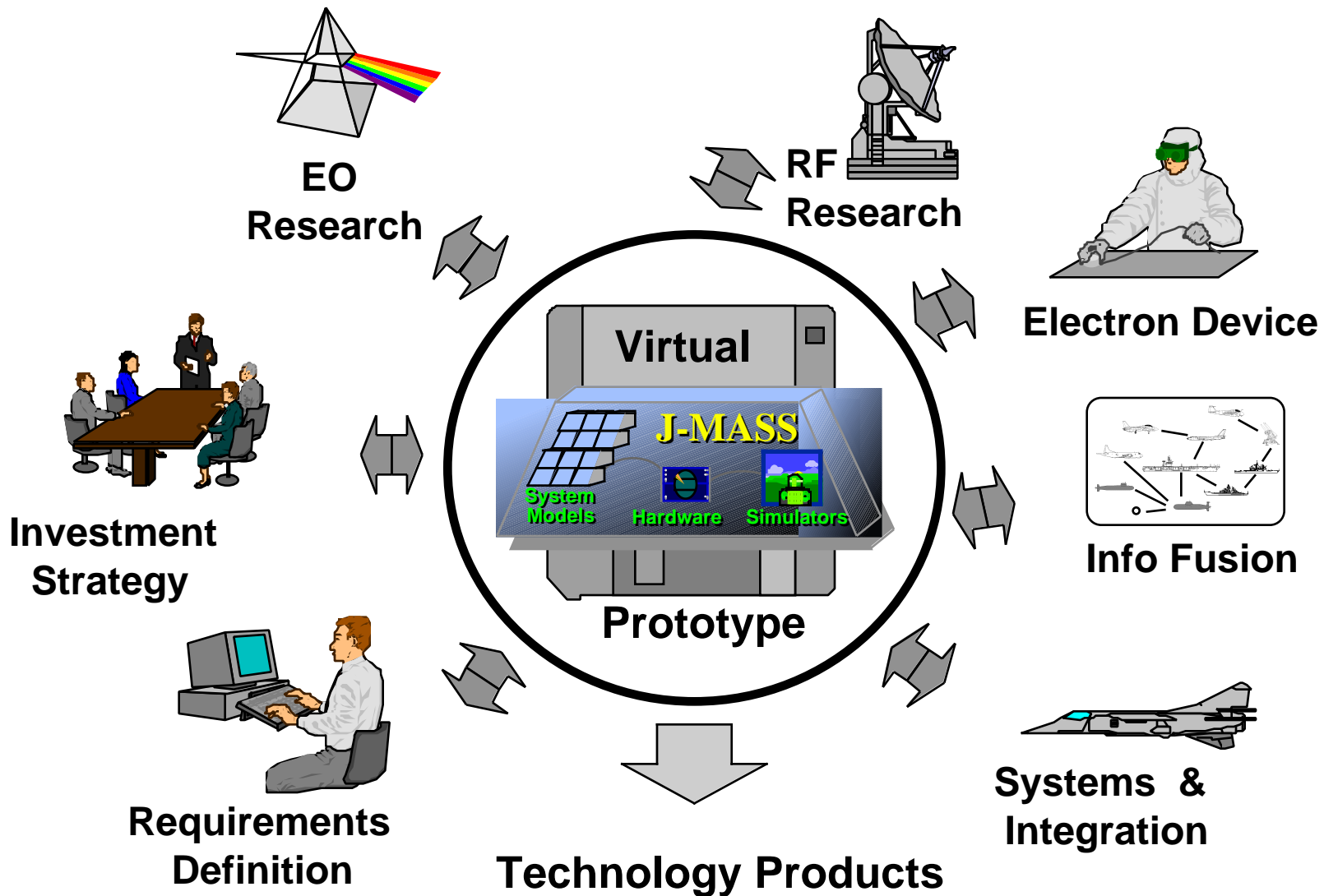




# Virtual Prototyping Across the Life Cycle



# Collaborative Virtual Prototyping Across Domains



# Distributed Collaborative Virtual Prototyping for a Virtual Laboratory

